No. 8700041

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Northrup King Co.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT IETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT AT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN

'779'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D. C. *this* 31st *day of* August *in the year of our Lord one thousand nine hundred and* eighty-seven.

Attest:

Kenneth R. Evans
Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Richard E. Lyng
Secretary of Agriculture

APPROVAL EXPIRES 2-28-88

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION	3. VARIETY NAME
Northrup King Co.	L7903	779

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*	5. PHONE *(Include area code)*	FOR OFFICIAL USE ONLY PVPO NUMBER
P.O. Box 959 Minneapolis, MN 55440	(612) 593-7305	8700041

6. GENUS AND SPECIES NAME	7. FAMILY NAME *(Botanical)*	FILING DATE / TIME
Zea mays L.	Graminae	January 2, 1987 2:00 ☐ A.M. ☒ P.M.

8. KIND NAME	9. DATE OF DETERMINATION	FEES RECEIVED
Corn	February 1983	AMOUNT FOR FILING $ 1800 00 DATE January 2, 1987 AMOUNT FOR CERTIFICATE $ 200 00 DATE August 5, 1987

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*

Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION	12. DATE OF INCORPORATION
Delaware	1896

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS

Robert Romig
Northrup King Co.
P.O. Box 959
Minneapolis, MN 55440

PHONE *(Include area code)*: (612) 593-7305

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
d. ☐ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)* ☐ Yes *(If "Yes," answer items 16 and 17 below)* ☒ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?	17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ Yes ☐ No	☐ Foundation ☐ Registered ☐ Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?

☐ Yes *(If "Yes," give date)*
☒ No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES ?

Canada	February 1986	Released as parent in a hybrid
U.S.	February 1986	

☒ Yes *(If "Yes," give names of countries and dates)*
☐ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT	DATE
Robert W. Romig	December 29, 1986
SIGNATURE OF APPLICANT	DATE

FORM LS-470 (3-86) *Edition of 7-84 obsolete.*

EXHIBIT A

Origin and Breeding History of Corn 779

We developed the inbred corn (Zea mays L.) line 779 from a cross between CM7-24 and W117 which we made at Glen Haven, Wisconsin, in 1967. Our line CM7-24 is derived from a single ear selection from a selfed plant of CM7, a public line which originated from a cross W85/CMV3 made at the Agriculture Canada Research Station at Morden, Manitoba. Line W117, also a public line, originated from a cross 643/Minnesota 13 made at the Wisconsin Agricultural Experiment Station at Madison, Wisconsin.

Following the cross, we selfed in the F_1 to F_6 generations. In 1974, we grew the F_7 (S_6) lines from this process at our London, Ontario site for selection for early silking and good earing. We also made sib crosses within these rows to develop the F_7 (S_6) families. Subsequently, we selfed in the F_8 (S_7) and F_9 (S_8).

On the basis of test cross results, we selected the F_9 (S_8) line L7903 in 1979 as our selection from the cross. Since then, we have maintained the line by selfing.

We further tested line L7903 in various hybrid combinations and at various locations from 1980 to 1982. On the basis of performance in these trials, we changed the station number L7903 to the company number 779 in February 1983 when we decided to develop breeder seed of this inbred corn variety.

The corn inbred 779 is a stable and uniform variety. We have observed no variants in four years of increase.

We first offered 779 for sale in February 1986 as a parent in one of our hybrids.

EXHIBIT B

Novelty Statement for the Variety

779 is most similar to W117, a line released from the University of Wisconsin. It can be differentiated from W117 by the following characteristics:

1. W117 has pink anthers; 779 has green anthers.

2. 779 is an earlier flowering line. Heat units from planting to 50% silk are approximately 125 less for 779 compared to W117.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK, POULTRY, GRAIN & SEED DIVISION
BELTSVILLE, MARYLAND 20705

EXHIBIT (
(Corn)

OBJECTIVE DESCRIPTION OF VARIETY
CORN *(ZEA MAYS)*

NAME OF APPLICANT(S)
Northrup King Co.

ADDRESS *(Street and No. or R.F.D. No., City, State, and ZIP Code)*
P.O. Box 959
Minneapolis, MN 55440

FOR OFFICIAL USE ONLY
PVPO NUMBER 8700041
VARIETY NAME OR TEMPORARY DESIGNATION
779

Place the appropriate number that describes the varietal character of this variety in the boxes below.
Place a zero in first box (e.g. [0][8][9] or [0][9]) when number is either 99 or less or 9 or less.

1. TYPE:

[2] 1 = SWEET 2 = DENT 3 = FLINT 4 = FLOUR 5 = POP 6 = ORNAMENTAL

2. REGION WHERE BEST ADAPTED IN THE U.S.A.:

[2] 1 = NORTHWEST 2 = NORTHCENTRAL 3 = NORTHEAST 4 = SOUTHEAST
5 = SOUTHCENTRAL 6 = SOUTHWEST 7 = MOST REGIONS

3. MATURITY (In Region of Best Adaptability): *(Under "comments" (pg. 3) state how heat units were calculated)*

[ ][ ] DAYS FROM EMERGENCE TO 50% OF PLANTS IN SILK — [1][0][0][0] HEAT UNITS

[ ][ ] DAYS FROM 50% SILK TO OPTIMUM EDIBLE QUALITY — [ ][ ][ ][ ] HEAT UNITS

[ ][ ] DAYS FROM 50% SILK TO HARVEST AT 25% KERNEL MOISTURE — [ ][ ][ ][ ] HEAT UNITS

4. PLANT:

[1][6][0] CM. HEIGHT (To tassel tip)

[0][4][8] CM. EAR HEIGHT (To base of top ea

[1][5] CM. LENGTH OF TOP EAR INTERNODE

Number of Tillers:

[1] 1 = NONE 2 = 1–2 3 = 2–3 4 = > 3

Number of Ears Per Stalk:

[1] 1 = SINGLE 2 = SLIGHT TWO-EAR TENDENCY
3 = STRONG TWO-EAR TENDENCY 4 = THREE-EAR TENDENC

Cytoplasm Type:

[1] 1 = NORMAL 2 = "T" 3 = "S" 4 = "C" 5 = OTHER (Specify) _____

5. LEAF (Field Corn Inbred Examples Given):

Color:

[2] 1 = LIGHT GREEN (HY) 2 = MEDIUM GREEN (WF9) 3 = DARK GREEN (B14) 4 = VERY DARK GREEN (K1

Angle from Stalk (Upper half):

[2] 1 = < 30° 2 = 30–60° 3 = > 60°

Sheath Pubscence:

[1] 1 = LIGHT (W22) 2 = MEDIUM (WF9)
3 = HEAVY (OH26)

Marginal Waves:

[2] 1 = NONE (HY) 2 = FEW (WF9) 3 = MANY (OH7L)

Longitudinal Creases:

[2] 1 = ABSENT (OH51) 2 = FEW (OH56A)
3 = MANY (PA11)

Width:

[0][5] CM. WIDEST POINT OF EAR NODE LEAF

Length:

[0][5][0] CM. EAR NODE LEAF

[0][8] NUMBER OF LEAVES PER MATURE PLANT

4

6. TASSEL:

[0][4] NUMBER OF LATERAL BRANCHES

Branch Angle from Central Spike:

[2] 1 = < 30° 2 = 30–40° 3 = > 45°

Penduncle Length:

[1][0] CM. FROM TOP LEAF TO BASAL BRANCHES

Pollen Shed:

[2] 1 = LIGHT (WF9) 2 = MEDIUM 3 = HEAVY(KY21)

[5] Anther Color:
[4] Glume Color:
1 = YELLOW 2 = PINK 3 = RED 4 = PURPLE 5 = GREEN
6 = OTHER (Specify) _____

Pollen Restoration for Cytoplasms (o = Not Tested, 1 = Partial, 2 = Good)

[0] "T" [0] "S" [0] "C" [0] OTHER (Specify Cytoplasm and degrees of restoration) _____

7. EAR (Husked Ear Data Except When Stated Otherwise):

[1][3] CM LENGTH [3][0] MM. MID-POINT DIAMETER [6][0] GM. WEIGHT

Kernel Rows:

[2] 1 = INDISTINCT 2 = DISTINCT [1][0] NUMBER

[2] 1 = STRAIGHT 2 = SLIGHTLY CURVED 3 = SPIRAL

Silk Color (Exposed at Silking Stage):

[1] 1 = GREEN 2 = PINK 3 = SALMON 4 = RED

Husk Color:

[1] FRESH
[6] DRY
1 = LIGHT GREEN 2 = DARK GREEN 3 = PINK
4 = RED 5 = PURPLE 6 = BUFF

Husk Extention: (Harvest Stage)

[2] 1 = SHORT (Ears Exposed) 2 = MEDIUM (Barely Covering Ear)
3 = LONG (8–10CM Beyond Ear Tip)
4 = VERY LONG (> 10 CM)

Husk Leaf:

[1] 1 = SHORT (< 8 CM) 2 = MEDIUM (8–15 CM)
3 = LONG (> 15 CM)

Shank:

[1][5] CM LONG [4] NO. OF INTERNODES

Position at Dry Husk Stage:

[3] 1 = UPRIGHT 2 = HORIZONTAL 3 = PENDENT

Taper:

[3] 1 = SLIGHT 2 = AVERAGE 3 = EXTREME

Drying Time (Unhusked Ear):

[3] 1 = SLOW 2 = AVERAGE 3 = FAST

8. KERNEL (Dried):

Size (From Ear Mid-Point):

[0][8] MM LONG [0][7] MM. WIDE [0][6] MM. THICK

Shape Grade (% Rounds)

[4] 1 = < 20 2 = 20–40 3 = 40–60 4 = 60–80 5 = > 80

8700041

8. KERNEL (Dried) :

[1] **Pericarp Color:** 1 = COLORLESS 2 = RED-WHITE CROWN 3 = TAN 4 = BRONZE 5 = BROWN 6 = LIGHT RED 7 = CHERRY RED 8 = VARIEGATED (Describe) _____

[1] **Aleurone Color:** 1 = HOMOZYGOUS 2 = SEGREGATING (Describe) _____

[1] 1 = WHITE 2 = PINK 3 = TAN 4 = BROWN 5 = BRONZE 6 = RED 7 = PURPLE 8 = PALE PURPLE 9 = VARIEGATED (Describe) _____

[4] 3 RJS. 6/16/87 **Endosperm Color:** 1 = WHITE 2 = PALE YELLOW 3 = YELLOW 4 = PINK-ORANGE 5 = WHITE CAP.

Endosperm Type:

[3] 1 = SWEET (su1) 2 = EXTRA SWEET (sh2) 3 = NORMAL STARCH 4 = HIGH AMYLOSE STARCH 5 = WAXY STARCH 6 = HIGH PROTEIN 7 = HIGH LYSINE 8 = OTHER (Specify) _____

[2][0] GM. WEIGHT /100 SEEDS (Unsized Sample)

9. COB:

[2][0] MM. DIAMETER AT MID-POINT

Strength:

[2] 1 = WEAK 2 = STRONG

Color:

[1] 1 = WHITE 2 = PINK 3 = RED 4 = BROWN 5 = VARIEGATED 6 OTHER (Specify) _____

10. DISEASE RESISTANCE (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

[1]	STALK ROT (Diplodia)	[1]	STALK ROT (Fusarium)	[1]	STALK ROT (Gibberella)
[1]	NORTHERN LEAF BLIGHT	[0]	SOUTHERN LEAF BLIGHT	[0]	SMUT
[0]	SOUTHERN RUST	[0]	CORN SMUT	[0]	BACTERIAL WILT
[0]	BACTERIAL LEAF BLIGHT	[0]	MAIZE DWARF MOSAIC	[0]	STUNT
[ ]	OTHER (Specify)				

11. INSECT RESISTANCT (0 = Not Tested, 1 = Susceptible, 2 = Resistant):

[1]	CORNBORER	[0]	EARWORM	[0]	SAPBEETLE	[0]	APHID
[0]	ROOTWORM (Northern)	[0]	ROOTWORM (Western)				
[0]	ROOTWORM (Southern)	[0]	OTHER (Specify) _____				

12. VARIETIES MOST CLOSELY RESEMBLING THAT SUBMITTED FOR THE CHARACTERS GIVEN:

CHARACTER	VARIETY	CHARACTER	VARIETY
Maturity		Kernel Type	
Plant Type		Quality (Edible)	
Ear Type		Usage	

REFERENCES:

U.S. Department Agriculture. Yearbook 1937.

Corn: Culture, Processing, Products. 1970 Avi Publishing Company, Westport, Connecticut. (Numerous (Authors)

Emerson, R.A., G.W. Beadle, and A.C. Fraser. A Summary of Linkage Studies in Maize. Cornell A.E.S., Mem. 180. 1935.

The Mutants of Maize. 1968. Crop Science Society of America. Madison, Wisconsin.

Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S. Bul. 831. 1959.

Butler, D.R. 1954 — A System for the Classification of Corn Inbred Lines — PhD. Thesis, Ohio State University.

COMMENTS: (Temp Maximum + Temp Minimum)/2 - 50 = Heat Units (Fahrenheit Temperature)

6

EXHIBIT E

Statement of the Basis of Applicant's Ownership

The inbred line 779 was developed by Northrup King Co. corn breeding staff from germplasm cited in Exhibit A of the application. Northrup King believes this inbred line is novel as defined in the Plant Variety Protection Act, and, therefore, that Northrup King is the sole owner of the variety.

State of Delaware

Office of the Secretary of State

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "NORTHRUP KING CO.", CHANGING ITS NAME FROM "NORTHRUP KING CO." TO "NOVARTIS SEEDS, INC.", FILED IN THIS OFFICE ON THE THIRTIETH DAY OF DECEMBER, A.D. 1996, AT 9 O'CLOCK A.M.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS FOR RECORDING.

GREAT SEAL OF THE STATE OF DELAWARE • 1793 • 1847 • 1907 •

LIBERTY AND INDEPENDENCE

Edward J. Freel

Edward J. Freel, Secretary of State

0829320 8100

960389892

AUTHENTICATION: 8267947

DATE: 12-31-96

CERTIFICATE OF AMENDMENT OF CERTIFICATE OF INCORPORATION

OF

NORTHRUP KING CO.

It is certified that:

1. The name of the corporation (hereinafter called the "Corporation") is Northrup King Co.

2. The Certificate of Incorporation of the Corporation is hereby amended by striking out Section 1 thereof and by substituting in lieu of said Section the following new Section.

1. The name of the Corporation is Novartis Seeds, Inc.

3. The amendment of the certificate of incorporation herein certified has been duly adopted and written consent has been given in accordance with the provisions of Sections 228 and 242 of the General Corporation Law of the State of Delaware.

4. The effective date of the amendment herein certified shall be January 1,1997.

Signed on December 27, 1996.

Edward C. Resler
Vice President & Secretary